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ABSTRACT

In the event of a debilitating injury or illness, outdoor leaders should consider four critical phases in successfully managing backcountry field evaluations. The first phase, managing the immediate scene, involves assuring scene safety, medical care of the patient, instituting the emergency response plan, and providing for the needs of uninjured group members. Outdoor leaders must put aside distracting emotions and concerns, such as pity, fear, guilt, and the potential for professional and legal consequences, and focus on the task at hand. The next phase is consideration of the evacuation spectrum, from no evacuation to litter-carry or outside intervention such as a helicopter evacuation. Eight evacuation criteria assist in the decision, but the basic rule is: when in doubt, get the patient out. Continual reassessment of the weather, the group members' condition, and the patient's condition is necessary. The phase of transferring the patient to professional rescuers involves accurately communicating what happened and the leader's expectations to the rescuers, dealing with emotions surrounding separation of the patient from the group, and providing support to the patient after evacuation. The final phase is managing stress in the leader, the group, and the patient during the incident and upon conclusion of the evacuation. Leaders and group members should participate in Critical Incident Stress Debriefing, even if the outcome of the incident was successful. (TD)

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MANAGING FIELD EVACUATIONS

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If you work with a quality outdoor education, service or adventure program -- whether you are a professional outdoor leader in the field or an administrator on the staff -- your utmost priority is the safety and well being of every student and staff member. As a result, a large portion of your organization's planning time and training is devoted to anticipating and preventing incidents, and developing emergency response systems and plans should an emergency evacuation become necessary for one of your programs or courses. But as we all know, despite due diligence, stuff happens. This paper will highlight key issues to consider when responding to significant issues in the field requiring evacuation.

Many of us in the "industry" have gained significant experience in emergency response in outdoor settings through work with local search and rescue organizations, with federal professionals in the National Park Service, US Forest Service (and others), or working with ambulance services. All of these types of outfits provide quality services that have been responsible for saving many thousands of lives, using time tested protocols and procedures that guide the rescuer in the performance of her or his service.

One of our greatest challenges in this business of outdoor programming however, is that it is often difficult to put up "the wall of professionalism" we have been trained to build that separates us from the human drama, trauma and sometime tragedy of the situation we are responding to. The reason this happens, of course, is that rather than coming to the aid of patients we have never met, the patient will likely be a member of our group of wilderness travelers, often a young person, and perhaps even a colleague or long time friend. And, we may in fact, as many outdoor leaders are, be *responsible* for a decision that led to the original incident.

Despite the fact that the heightened standards in risk management and prevention programs now prevalent in our industry has reduced the number of incidents per participant days, statistics and experience tell us that incidents still will occur. In the event of a debilitating injury or illness, regardless or our relationship to the patient, there are four critical phases that outdoor leaders should consider in successfully managing backcountry field evacuations. These guidelines borrow in part from the Wilderness Medical Society's *Practice Guidelines*, edited by W M. Forgey, MD.

- Manage the incident to minimize risk to the remaining party and to provide appropriate patient care.
- Determine the most appropriate evacuation response to the incident.
- Transfer patient care to third party rescue personnel (if not performed by your own organization).
- Manage stress during and after the incident to improve your success rate for all of the points above.

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The following sections will highlight strategies and actions you should consider in managing evacuations to meet the above goals.

Managing the Immediate Scene

"Don't just do something...stand there!"

Safety is your number one priority. But you must stop and assess the scene before you assess the patient(s). *Before* you touch your patient, ask yourself four questions: What happened? Are you safe? Is the rest of your group safe? Is the injured/ill person in a safe environment? Think before you act. As soon as patient care begins, your ability to assess the larger scene for safety and mechanism of injury is greatly reduced by your specific focus on the patient.

Despite both your training and experience, managing a critical scene is very stressful and can be overwhelming. Imagine how you would feel if you were group leader of young adults, and your choice of a route proved to be unsafe and led to the injury of two of your students. As we mentioned earlier, unlike rescue personnel who maintain a level of "distance" from an anonymous patient, outdoor leaders typically know and are responsible for their patients. Another critical factor in this scenario is the possibility that, in some instances the leaders may have played a role in causing the initial incident. It would be easy to become totally overwhelmed at such a moment.

The leader must be able to control these emotions in order to focus on the important issues of the moment -- assuring scene safety, medical care of the patient, instituting the emergency response plan, and providing for the needs of the uninjured group members. Distracting emotions and concerns need to moved into the "To Be Dealt With Later" file. These might include (but certainly not limited to) pity or fear, thoughts about the long-term outcome of the illness or injury, guilt and feelings of personal responsibility, and the potential for professional and legal consequences. Although you must deal with these issues at some point after this critical stage, for now you need to concentrate on more immediate needs. By recognizing that these concerns will loom up in the midst of your initial response and anticipating them as absolutely normal and appropriate, you will find it easier to focus your energies on the task at hand.

The Evacuation Spectrum

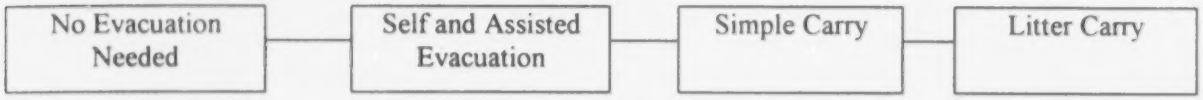
"Today is a good day to get hurt!"

As a leader you should be able to wake up and say "this is a good day for me or a member of my group to get hurt. My group is healthy, well fed, well hydrated, in good spirits, and we have a well thought out emergency response plan should something go wrong". If you cannot say this at the beginning of each and every day, then as a leader, you need to address and correct this problem. As a leader, remember to focus on injury and illness prevention.

Your main objective is obviously to prevent accidents and illness so that incidents and consequently, evacuations, become unnecessary. Fortunately, most injuries and illnesses are minor and can be addressed and treated in the field. But there is a second, more subtle, level of prevention that needs to occur to prevent the injury or illness from progressing from the left side of the evacuation spectrum to the right side (see below). For

example, by continuing to assess and treat an injury as simple as an infected blister you may be able to walk your patient out rather than having them become weakened through a progressive infection. It is important to continue concentrating on this second level of injury and illness prevention after the initial incident has occurred to keep the injury/illness from progressing.

Evacuation Spectrum



There are many variables to consider as you assess backcountry emergencies. We will cover some evacuation criteria later, but these criteria must be evaluated within the context of the evacuation spectrum. The spectrum's first category is "No Evacuation Needed." You make this decision after determining that you can handle the situation where you are.

The second category is "Self and Assisted Evacuation". Here the patient can self-extricate with little or no help. An example is a patient with an early urinary tract infection (UTI) who is ill but still able to walk (ski, paddle, whatever) out of the backcountry.

The third category is "Simple Carry". This same patient becomes too weak to walk, but is strong enough (and the terrain forgiving enough) to be carried out by one or two team members. This evacuation will be slower than the "Self and Assisted", and is the first category where we really begin to worry about rescuer and patient safety (particularly falls and back injuries). This method is obviously not an acceptable choice for any patient needing cervical spine protection during transport.

The fourth and final category of the evacuation spectrum is the "Litter Carry". The patient is now too weak to hold on for a carry, is unresponsive, or needs immobilization to protect known or possible fractures. Litter carries are fraught with peril, and should be avoided whenever possible. They are very time-consuming, expensive in terms of resources, and dangerous for all involved, including the patient. So that you do not underestimate what a litter carry involves, consider this:

You would need to have six to ten people carry the litter, depending upon the size of the patient and rescuers, and the nature of the terrain to be covered. You would optimally have a person in charge, directing the carriers. Even under the best of circumstances, progress will be very slow and rescuers will become fatigued. Under difficult circumstances – a large patient, only six rescuers, bad weather, steep, rugged terrain -- progress will be extremely slow and rescuers will soon become exhausted. Exhausted rescuers bearing a load over uneven terrain are at high risk for injury. Finally, it is extremely difficult to provide ongoing medical care to a patient being carried in a litter. >From airway management to assisting with voiding, all patient management interventions are complicated under these conditions.

A final note here is that significant outside intervention, specifically life flight or other helicopter support, falls in at this end of the evacuation spectrum as well. Flights offer incredible support under the right circumstances, and usually bring the patient into the realm of increased medical care quickly. They are, however, extremely expensive, and more importantly, not always available due to weather, darkness, landing zone considerations,

commitments to other duties, or restricted access in designated Wilderness areas. When they do fly, they are also putting additional personnel at increased risk.

Two important points need to be made as one evaluates their situation relative to the evacuation spectrum. First, this is a dynamic process. We manage evacuations the same way we manage the medical care of patients: we assess, intervene, then re-assess. Leaders must be flexible and not blindly adhere to a plan because "that's what we decided." The plan may be altered as the patient's condition and/or backcountry variables (weather, etc.) change.

Second, when in doubt, get the patient out. Whenever possible, stay on the left side of the spectrum (where no carries are involved). Some patients, by virtue of the illness or injury suffered, will require a litter carry. It is sometimes unavoidable. What you want to avoid is staying in the backcountry with a sick or injured patient (who yesterday could have walked out) whose condition deteriorates, and now must be carried out.

Once the decision to evacuate is made, there are a number of inter-dependent variables to consider, each of which may hasten, postpone or change the method of evacuation. Evaluate weather. You may have everything in place for your group to litter-carry your head-injured patient off a high mountain ridge. But if three inches of wet snow fall, making the already loose scree wet and slippery, you might want to reconsider your decision. Depending on terrain and your distance from civilization, deteriorating weather can make you want to go, or stay. You may think, "the weather is closing in, so we'd better get out of here while we can." Or, you may think, "with this weather closing in, we'd better sit tight until things clear." It depends on your patient's condition, the terrain, and your location.

You must also consider the other members of your group. The obvious part of this is skills and equipment. If no one knows how to construct a litter, or if materials are not available, another plan must be considered. The more subtle assessment is the mental and physical readiness of the members. If some are physically exhausted or mentally distraught, they probably should not embark upon an arduous litter-carry.

Evacuation Criteria

Making the decision to actually evacuate is a challenging one, so it is helpful to have set criteria to compare to the variables of your specific situation. We have placed reasons to evacuate into eight categories, as outlined in the chart below. The following outline is intentionally brief and does not include all injuries and illnesses that an outdoor leader might encounter.

1. Immediate Threat to Life	5. Cosmetics
2. Immediate Threat to Limb	6. Mechanism of Injury
3. Malaise	7. Psychological
4. Pain	8. "Other"

The first category of evacuation criteria is Immediate Threats to Life. These include patients with an unmanageable airway, acute respiratory distress (struggling to breathe, cannot sleep or are awakened due to shortness of breath, or have difficulty breathing while at rest), signs and symptoms of shock, and/or those with a deteriorating level of consciousness.

The second category, equally obvious, is Immediate Threats to Limb. These include patients with severe orthopedic trauma (any fracture or any injury resulting in the loss of distal circulation, movement or sensation), suspected spinal trauma, and/or significant blows to the head (leading to changes in the level of consciousness).

The third category of evacuation criteria is Malaise. This includes patients with signs and symptoms of progressive infection (increased redness, pain and swelling, "streaking" in lymphatic system towards the heart, fatigue, significant fever, swelling in lymph glands). Other symptoms include the inability to tolerate oral liquids for more than twelve hours, true diarrhea for more than twelve hours, signs and symptoms of dehydration (weakness, headache, lethargy, dry mucus membranes, low urine output, dark urine), and progressive or unexplained weakness (dehydration, infection). A final concern is significant fever, defined as any fever at all over 102 degrees F, or any fever over 100 Degrees F for longer than twelve hours.

The fourth category of evacuation criteria is Pain. This includes severe pain with a sudden onset that is constant or getting worse or any significant pain that does not abate after twelve hours. Other concerns include abdominal pain accompanied with signs and symptoms of shock, females with unexplained abdominal pain, and any chest pain that you fear might not be from musculo-skeletal origin.

The fifth category of evacuation criteria is Cosmetics. This is an area that is often not considered, but leaders and organizations, especially those serving youthful clients, should be particularly concerned with injuries that could potentially scar and/or limit function. This is particularly challenging because of the "teenager immortality factor." Occasionally, teens do not care about small scars of the face, head and neck and will resist evacuation. Since timely closure/plastic surgery does, in some cases, reduce scarring, we must remember that their parents might care very much. So, we urge you to strongly consider evacuating those patients with potentially scarring injuries of the face, head and neck and/or potentially scarring injuries to joints.

The sixth category of evacuation criteria is Mechanism of Injury. It is crucial that providers understand the importance of this category. Young, healthy people (frequently those we deal with in the backcountry) often tolerate trauma well. They can be suffering significant internal bleeding (especially from blunt trauma to the head, chest and/or abdomen) even though the initial exam might show only minimal signs of injury. The patient may be able to compensate for many hours before external signs of distress are visible, during which time a valuable opportunity to evacuate may have been lost. Examples of mechanisms of injury necessitating evacuation even in the absence of signs or symptoms of distress include any fall greater than fifteen feet, any other "significant fall", factoring in which body parts impacted and upon what type of surface, and any trauma that results in *any* loss of consciousness.

The seventh category of evacuation criteria is Psychological. Evacuate any member of the group that poses a threat to themselves and/or to others. Unstable group members can cause crises all on their own, and can make dealing with other emergency situations that arise much more difficult. Generally, you should consider other behavioral and discipline issues under this category as well.

The final category of evacuation criteria is "Other". This includes patients with suspected (but not obvious) fractures, and wounds with progressive infection. Burns are almost in a separate category. You should consider evacuation for burns to hands, feet, face or genitals, 2nd degree (partial thickness) burns over more than 1% of the patient's body

surface area (an area equal to the size of the palm of the patient's hand), and any 3rd degree (full thickness) burn.

Above all, when assessing whether an evacuation is necessary, consider these four "golden rules" for making the "Go" decision to evacuate:

- **Think.** Evaluate the scene for potential dangers and the mechanism of injury. Assess your patient(s). Consider all variables. Then make a plan.
- **Use your gut instinct** (and err on the side of caution). Trust your gut instinct and your medical training. Do the pieces add up? How does the person look?
- **Do it sooner rather than later.** Once you make the decision to cross the threshold and evacuate, do it sooner rather than later. Do not allow a person to become incapacitated before you make the decision to evacuate.
- **Do not rush.** Although you should follow the "do it sooner" rule, once you make the decision to evacuate, delaying the evacuation by a few minutes most likely will not change the outcome. Take time to educate your group, gather materials, and execute your plan. Do not create more patients or exit the scene with insufficient information by rushing your evacuation.

Transfer of Patient Care

The end game of evacuation is transfer of the patient to professional rescuers (Search and Rescue, ground or air ambulance crews, or clinics). This transfer goes more smoothly for all parties involved (your group, the rescuers, and the sometimes-forgotten patient) if a few general guidelines are followed. First, whenever possible, designate a leader who will be the main communicator, and have that person speak with the rescue team leader. This greatly simplifies what can be a very confusing interface. Also, having a concise, legible written report is extremely valuable.

This can be a difficult time emotionally for your group. Your members will have invested much of themselves in this process. It is difficult to let go of the patient, even when you are convinced that the patient's needs are being met. The transfer leaves a void. Offer your group's help with logistics, but realize that your help may not be needed at this time. Tell them everything you want them to know. They may be in a big hurry, but this is probably your last chance to tell your story, so if you have important information make sure it gets relayed.

This sense of separation can be especially troubling if group members (or you) have concerns about the abilities of the rescue team. Most often, these concerns are actually about communications issues that are easily resolved by slowing the quick pace of action down enough to clearly communicate your expectations. This is of particular importance if the patient is a minor, for whom you (or your organization) hold *en locus parentus*, i.e., legal authority over that minor patient's care. Knowing where the patient is being taken for treatment for example, is something rescuers don't always view as an important item for you to know versus getting that patient out of the mountains quickly. But it obviously remains important to you.

Occasionally though, there may be very legitimate concerns that the transfer may actually result in a decrease in the level of medical care your patient will be receiving. You may determine that you have greater experience, and/or hold a higher level of medical certification. If, as leader, you feel that the rescue group cannot meet your patient's needs, then you will have to be creative. Options to consider include accessing another rescue group, continuing the transport yourselves, or pooling resources with the rescue team

(recognizing that you cannot abandon your group without leadership). Either way, the leader can expect the members of the group to experience a sense of loss at this time. Try to anticipate and be sensitive to this. If your perception is that there are frustrations and anger amongst members, it might be best to let matters settle for awhile before addressing them. But if people seem generally satisfied with the intervention, but sad at the transfer of responsibilities, it might be a good time to take a break and talk about things. Whether the patient outcome is positive or not, the astute leader will recognize that people will need to talk about the events, and that the timing of the conversation can be as important as the content.

Finally, even under the best of circumstances, with a strong and confident team coming in, you still need to consider your responsibility to the patient. If you have a leader to spare, she or he should most likely accompany the patient out. Once the rescue is complete, the patient (perhaps a minor) may be alone in a hospital far from home, in need of an advocate. Your organization may also be able to provide this support, or you may not be in a position to leave your group, but you should also be thinking about what happens once the patient is successfully extracted from the scene.

Managing the Rest of Your Group

As a leader facing a debilitating or perhaps life threatening injury or illness, you are responsible for both caring for the patient and still providing leadership for the rest of your group. It is important that both the injured person and the rest of your group see that you are in control of the situation and not being controlled by it. In the midst of the tremendous stress of such a situation, remember to care for yourself as well. Once the injured person is stabilized, calm and (relatively) comfortable, you may want to step away for a moment to give yourself space to plan what you will do next.

You need to consider several things at this point. First, the members of your group are now prime candidates for becoming additional patients if you are dealing with an unsafe scene or other significant unfavorable environmental factors. Second, this group is a potential treasure trove of assistance to both you and the patient. And third, individuals in the group may be in a better position to see the precariousness of the situation, and thus are equally, or in some cases, more susceptible to stress than the patient. It is extremely important that you share your confidence in both their ability and your own to successfully handle this situation. Be as upbeat as possible, but also be truthful.

Involve your group in helping you administer first aid and evacuate the injured person as much as is possible and safe. In doing so, you will begin to relieve their stress. If you have discussed safety and your emergency response plan, they will be mentally prepared to pitch in. Involve members who do not appear to be comfortable working with or near the patient with setting up shelter, preparing and distributing food and water, or other such tasks.

If anyone on site becomes a nuisance rather than helpful, direct him to perform another task unrelated to the first aid/evacuation. If you suspect he may be suffering from emotional shock, have him work with a partner who can keep an eye on him. Managing stress in the patient, yourself and the rest of the crew may be the hardest and most important thing you do to ensure a smooth evacuation. Keep at it.

Managing Stress in the Field

Perhaps the most sincere and oft spoken lie to pass the lips of an outdoor leader in crisis management mode is "I'm okay". The leader(s) job is to take care of everyone, including him or her self. Maintaining the perspective discussed earlier about time appropriate concerns versus immediate needs can help control stress in the midst of the incident response.

While you are still in the field, pay attention to basic needs. Shelter if necessary and hot food and drinks, if possible under your circumstances, can really help alleviate anxiety. Laughing and joking (sometimes necessarily out of earshot of the patient, and sometimes involving the patient) may seem macabre to some, but it also stimulates endorphins, as well as a sense of perspective that is calming. Playing hacky sack or Frisbee, or simply reminding people that it is okay and appropriate to continue to appreciate and be in awe of their surroundings does wonders to reduce stress.

If you are fortunate enough to be in contact with the outside world via radio, cellular or satellite telephones, this will often help you manage your own stress, and it will certainly be a great source of comfort to both the patient and the rest of the expedition. But it can also be a double-edged sword for you as a leader. If this communication is utilized to commence the evaluation of the incident and the response, or to superimpose administrative oversight of the decision making process for the incident response, on- sight stress will skyrocket.

Footnote [SCA's policy, as well as many other organizations, is to put our full effort efforts and resources into supporting our leaders managing a crisis in the field, assuring that critical decisions remain with our leadership on site. As it is not in the best interest of the leader to be concerned about blame, responsibility, or for second guessing any earlier decisions at this time, so that is true for the organization as well.]

Managing Stress Post Incident

Stress *seems* to evaporate upon the conclusion of an evacuation, regardless of the outcome. There is relief that decision making is over, and exhaustion often plays a key role in making it feel as if everything is now behind you. If the outcome is positive, euphoria may also play a role in making the stress seem to disappear. The reality is however, that stress is very much present, and it is not about to dissipate without proactive work.

For your remaining students or group members, it is time to let them know that signs of stress will either continue to manifest themselves, or will likely reappear. These signs include irritability or antisocial behavior, changes in sleep patterns, or changes in eating habits. You may also need to deal with issues of loss of trust in your leadership, or profoundly, a loss of their own sense of ability or possibility of being safe in the environment in which the incident occurred.

It is also important to have members of the group express what they are thinking and feeling in an atmosphere of trust and safety, as much as that is possible. Talk about what the worst, and best, things were for them during the incident and evacuation. Help them find pride in their role in the successes, and to find proportion and perspective regarding things that may not have gone as well. Most importantly, do not attempt to talk anyone out of how he or she is feeling. Let them know that you understand that he or she is feeling that way, and that while you all are still in the field, you are available to discuss either these feelings or other concerns whenever they need to.

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As a leader, you need to be concerned that you don't fall prey to the "I'm okay" syndrome. Your very first question to yourself should be "do we stay in the field?" There will certainly be situations when it makes sense to stay, but now is the time to rely on your organizational or program protocols, or advice or direction from administrative staff. Both the decisions to stay in the field, and to determine how to manage the emotional and stress issues related to the event, should not be based on the outcome of the evacuation alone.

Even if the evacuation was a textbook model of stellar success, you will likely have some significant issues to resolve – all of those emotions you earlier put into the "To Be Dealt With Later" file. The questions you ask yourself may include "could I have done a better job?" Or "was my original decision that led to the incident a poor one?" You will want to ask those questions to others, and members of your group (even other leaders) are not necessarily going to be an appropriate audience.

It is at this point where the Critical Incident Stress Debriefing (CISD) process becomes extremely important. Leaders and all members of the group should debrief under the facilitation of a non-involved party with expertise in CISD, to begin to process the event. This allows the group to articulate feelings about any potential sense of loss, and other emotions such as anger, helplessness, or perhaps even guilt over a sense of pride in a job well done when the outcome was still not positive [see NOLS Wilderness First Aid, Stackpole Press, Chapter 21, Stress and the Rescuer]. It is also important to recognize that even if the outcome of the event is excellent, and the patient is no longer in danger, that the need for CISD will still be likely. Don't fall into the trap of thinking that you can base the need for this important emotional processing on how things end up working out.

Conclusion

At the conclusion of any evacuation, and after the critical incident debriefing process, there does need to be an evaluation of both the incident, and the response to it. While this may add to the leader's stress level, this should also be viewed as normal and important. Any organization of quality and repute, as well as any leader with pride in the high standards of professionalism of our field, will welcome and demand the opportunity to analyze decisions and assess performance. Once you have been fully supported in the field, it is not only an administrative responsibility to second-guess decisions and conduct, but as an outdoor professional, this is your responsibility as well. It is by doing this type of assessment that organizations grow, outdoor professionals deepen their experience, and the industry as a whole does a better job of managing risk in our chosen program environment.

The subjects touched upon in this article are basic to considerations of field evacuation, and of course, there are many more issues to consider. However, what is critical to the success of any response to a field emergency is preplanning, training, and an institutional commitment to the highest standards of wilderness risk management.

The authors wish to acknowledge the contribution to this article made by John Bleicher of the Aerie School of Wilderness Medicine. We also offer an appreciation to William "Doc" Forgey, MD for his continued positive contributions to the field of wilderness medicine and risk management, many of which are reflected herein.

Biographical Sketches

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